

SEQUENCE LISTING

<110> CARTER, Graham
CARR, Francis J.

<120> ANTI-IDIOTYPE ANTI-CEA ANTIBODY
MOLECULES AND METHODS

<130> MER-132

<150> PCT/03/03580

<151> 2003-04-07

<150> EP 02007885.3

<151> 2002-04-09

<160> 34

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 117

<212> PRT

<213> Mus musculus

<400> 1

Glu	Val	Gln	Leu	Gln	Gln	Ser	Gly	Pro	Glu	Leu	Val	Lys	Pro	Gly	Ala
1				5					10					15	
Ser	Val	Lys	Ile	Ser	Cys	Lys	Thr	Ser	Gly	His	Thr	Phe	Thr	Glu	Tyr
			20					25					30		
Asn	Met	Gln	Trp	Val	Lys	Gln	Ser	Leu	Gly	Gln	Ser	Leu	Glu	Trp	Ile
		35					40					45			
Gly	Gly	Ile	Asn	Pro	Asn	Asn	Val	Gly	Ser	Ile	Tyr	Asn	Gln	Lys	Phe
	50					55					60				
Arg	Gly	Lys	Ala	Thr	Leu	Thr	Val	Asp	Lys	Ser	Ser	Ser	Thr	Ala	Tyr
65					70				75					80	
Met	Glu	Leu	Arg	Ser	Leu	Thr	Ser	Glu	Asp	Ser	Ala	Val	Tyr	Tyr	Cys
			85					90					95		
Ala	Arg	Gly	Tyr	Gly	Asn	Tyr	Val	Ala	Tyr	Trp	Gly	Gln	Gly	Thr	Leu
		100						105					110		
Val	Thr	Val	Ser	Ala											
		115													

<210> 2

<211> 107

<212> PRT

<213> Mus musculus

<400> 2

Asp	Ile	Val	Met	Thr	Gln	Ser	Gln	Lys	Phe	Met	Ser	Thr	Ser	Val	Gly
1				5					10					15	

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Asp Arg Val Ser Val Thr Cys Lys Ala Ser Gln Asn Val Asn Thr Asn
      20      25      30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Ser Leu Ile
      35      40      45
Tyr Ser Ala Ser Tyr Arg Tyr Ser Gly Val Pro Asp Arg Phe Thr Gly
      50      55      60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Asn Val Gln Ser
65      70      75      80
Glu Asp Leu Ala Glu Phe Phe Cys Gln Gln Tyr Asn Arg Tyr Pro Phe
      85      90      95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Leu Lys
      100      105

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<210> 3
 <211> 645
 <212> PRT
 <213> Homo sapiens

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<400> 3
Lys Leu Thr Ile Glu Ser Thr Pro Phe Asn Val Ala Glu Gly Lys Glu
1      5      10      15
Val Leu Leu Leu Val His Asn Leu Pro Gln His Leu Phe Gly Tyr Ser
      20      25      30
Trp Tyr Lys Gly Glu Arg Val Asp Gly Asn Arg Gln Ile Ile Gly Tyr
      35      40      45
Val Ile Gly Thr Gln Gln Ala Thr Pro Gly Pro Ala Tyr Ser Gly Arg
50      55      60
Glu Ile Ile Tyr Pro Asn Ala Ser Leu Leu Ile Gln Asn Ile Ile Gln
65      70      75      80
Asn Asp Thr Gly Phe Tyr Thr Leu His Val Ile Lys Ser Asp Leu Val
      85      90      95
Asn Glu Glu Ala Thr Gly Gln Phe Arg Val Tyr Pro Glu Leu Pro Lys
      100      105      110
Pro Ser Ile Ser Ser Asn Asn Ser Lys Pro Val Glu Asp Lys Asp Ala
      115      120      125
Val Ala Phe Thr Cys Glu Pro Glu Thr Gln Asp Ala Thr Tyr Leu Trp
130      135      140
Trp Val Asn Asn Gln Ser Leu Pro Val Ser Pro Arg Leu Gln Leu Ser
145      150      155      160
Asn Gly Asn Arg Thr Leu Thr Leu Phe Asn Val Thr Arg Asn Asp Thr
      165      170      175
Ala Ser Tyr Lys Cys Glu Thr Gln Asn Pro Val Ser Ala Arg Arg Ser
      180      185      190
Asp Ser Val Ile Leu Asn Val Leu Tyr Gly Pro Asp Ala Pro Thr Ile
195      200      205
Ser Pro Leu Asn Thr Ser Tyr Arg Ser Gly Glu Asn Leu Asn Leu Ser
210      215      220
Cys His Ala Ala Ser Asn Pro Pro Ala Gln Tyr Ser Trp Phe Val Asn
225      230      235      240
Gly Thr Phe Gln Gln Ser Thr Gln Glu Leu Phe Ile Pro Asn Ile Thr
      245      250      255
Val Asn Asn Ser Gly Ser Tyr Thr Cys Gln Ala His Asn Ser Asp Thr

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<210> 4
<211> 347

<211> 347

<212> PRT

<213> Homo sapiens

<400> 4

Asp	Cys	Gly	Leu	Pro	Pro	Asp	Val	Pro	Asn	Ala	Gln	Pro	Ala	Leu	Glu	
1				5				10						15		
Gly	Arg	Thr	Ser	Phe	Pro	Glu	Asp	Thr	Val	Ile	Thr	Tyr	Lys	Cys	Glu	
			20					25					30			
Glu	Ser	Phe	Val	Lys	Ile	Pro	Gly	Glu	Lys	Asp	Ser	Val	Ile	Cys	Leu	
			35				40					45				
Lys	Gly	Ser	Gln	Trp	Ser	Asp	Ile	Glu	Glu	Phe	Cys	Asn	Arg	Ser	Cys	
	50					55					60					
Glu	Val	Pro	Thr	Arg	Leu	Asn	Ser	Ala	Ser	Leu	Lys	Gln	Pro	Tyr	Ile	
65					70					75					80	
Thr	Gln	Asn	Tyr	Phe	Pro	Val	Gly	Thr	Val	Val	Glu	Tyr	Glu	Cys	Arg	
				85					90					95		
Pro	Gly	Tyr	Arg	Arg	Glu	Pro	Ser	Leu	Ser	Pro	Lys	Leu	Thr	Cys	Leu	
			100					105					110			
Gln	Asn	Leu	Lys	Trp	Ser	Thr	Ala	Val	Glu	Phe	Cys	Lys	Lys	Lys	Ser	
		115					120					125				
Cys	Pro	Asn	Pro	Gly	Glu	Ile	Arg	Asn	Gly	Gln	Ile	Asp	Val	Pro	Gly	
	130					135					140					
Gly	Ile	Leu	Phe	Gly	Ala	Thr	Ile	Ser	Phe	Ser	Cys	Asn	Thr	Gly	Tyr	
145					150					155					160	
Lys	Leu	Phe	Gly	Ser	Thr	Ser	Ser	Phe	Cys	Leu	Ile	Ser	Gly	Ser	Ser	
				165					170					175		
Val	Gln	Trp	Ser	Asp	Pro	Leu	Pro	Glu	Cys	Arg	Glu	Ile	Tyr	Cys	Pro	
			180					185					190			
Ala	Pro	Pro	Gln	Ile	Asp	Asn	Gly	Ile	Ile	Gln	Gly	Glu	Arg	Asp	His	
		195					200					205				
Tyr	Gly	Tyr	Arg	Gln	Ser	Val	Thr	Tyr	Ala	Cys	Asn	Lys	Gly	Phe	Thr	
	210					215					220					
Met	Ile	Gly	Glu	His	Ser	Ile	Tyr	Cys	Thr	Val	Asn	Asn	Asp	Glu	Gly	
225					230					235				240		
Glu	Trp	Ser	Gly	Pro	Pro	Pro	Glu	Cys	Arg	Gly	Lys	Ser	Leu	Thr	Ser	
			245						250					255		
Lys	Val	Pro	Pro	Thr	Val	Gln	Lys	Pro	Thr	Thr	Val	Asn	Val	Pro	Thr	
		260						265					270			
Thr	Glu	Val	Ser	Pro	Thr	Ser	Gln	Lys	Thr	Thr	Thr	Lys	Thr	Thr	Thr	
		275					280					285				
Pro	Asn	Ala	Gln	Ala	Thr	Arg	Ser	Thr	Pro	Val	Ser	Arg	Thr	Thr	Lys	
		290				295					300					
His	Phe	His	Glu	Thr	Thr	Pro	Asn	Lys	Gly	Ser	Gly	Thr	Thr	Ser	Gly	
305					310					315					320	
Thr	Thr	Arg	Leu	Leu	Ser	Gly	His	Thr	Cys	Phe	Thr	Leu	Thr	Gly	Leu	
			325						330					335		
Leu	Gly	Thr	Leu	Val	Thr	Met	Gly	Leu	Leu	Thr						
			340					345								

<210> 5

<211> 17

<212> PRT

<213> Mus musculus

<400> 5

Gly Ile Asn Pro Asn Asn Val Gly Ser Ile Tyr Asn Gln Lys Phe Arg
1 5 10 15
Gly

<210> 6

<211> 8

<212> PRT

<213> Mus musculus

<400> 6

Gly Tyr Gly Asn Tyr Val Ala Tyr
1 5

<210> 7

<211> 10

<212> PRT

<213> Homo sapiens

<400> 7

Thr Leu Leu Ser Val Thr Arg Asn Asp Val
1 5 10

<210> 8

<211> 9

<212> PRT

<213> Homo sapiens

<400> 8

Tyr Leu Ser Gly Ala Asn Leu Asn Leu
1 5

<210> 9

<211> 117

<212> PRT

<213> Artificial Sequence

<220>

<223> modified heavy chain variable region of murine
antibody

<400> 9

Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Thr Gly Lys Pro Gly Ala
1 5 10 15
Ser Gly Lys Met Ser Cys Lys Thr Ser Gly His Thr Ser Thr Glu His
20 25 30

```

Asn Gly Gln Trp Ala Lys Gln Ser Pro Gly Gln Ser Leu Glu Trp Ile
    35                      40                      45
Gly Gly Ile Asn Pro Asn Asn Val Gly Ser Ile Tyr Asn Gln Lys Phe
    50                      55                      60
Arg Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala His
65                      70                      75                      80
Met Glu Leu Arg Ser Pro Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
    85                      90                      95
Ala Arg Gly Tyr Gly Asn Tyr Val Ala Tyr Trp Gly Gln Gly Thr Leu
    100                      105                      110
Val Thr Val Ser Ala
    115

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<210> 10
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified heavy chain variable region of murine
 antibody

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<400> 10
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Thr Gly Lys Pro Gly Ala
  1                      5                      10                      15
Ser Gly Lys Met Ser Cys Lys Thr Ser Gly His Thr Ser Thr Glu His
    20                      25                      30
Asn Gly Gln Trp Ala Lys Gln Ser Pro Gly Gln Ser Leu Glu Trp Asn
    35                      40                      45
Gly Gly Arg Asn Asn Ser Ile Val Lys Ser Ile Thr Val Ser Ala Ser
    50                      55                      60
Gly Thr Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala His
65                      70                      75                      80
Met Glu Leu Arg Ser Pro Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
    85                      90                      95
Ser Pro Ser Tyr Thr Tyr Tyr Arg Pro Gly Trp Gly Gln Gly Thr Leu
    100                      105                      110
Val Thr Val Ser Ala
    115

```

<210> 11
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified heavy chain variable region of murine
 antibody

```

<400> 11
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Thr Gly Lys Phe Gly Ala

```

1				5					10					15		
Thr	Ile	Ser	Phe	Ser	Cys	Asn	Thr	Gly	Tyr	Lys	Leu	Phe	Gly	Ser	Thr	
			20					25					30			
Ser	Gly	Gln	Trp	Ala	Arg	Gln	Ser	Pro	Gly	Gln	Ser	Leu	Glu	Trp	Asn	
		35				40						45				
Gly	Gly	Arg	Asn	Asn	Ser	Ile	Val	Lys	Ser	Ile	Thr	Val	Ser	Ala	Ser	
	50					55					60					
Gly	Thr	Lys	Ala	Thr	Leu	Thr	Ala	Asp	Lys	Ser	Ser	Ser	Thr	Ala	His	
65					70				75					80		
Met	Glu	Leu	Arg	Ser	Pro	Thr	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	
				85				90						95		
Ser	Pro	Ser	Tyr	Thr	Tyr	Tyr	Arg	Pro	Gly	Trp	Gly	Gln	Gly	Thr	Leu	
			100					105					110			
Val	Thr	Val	Ser	Ala												
			115													

<210> 12
 <211> 117
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified heavy chain variable region of murine antibody

<400> 12																
Glu	Val	Gln	Leu	Gln	Gln	Ser	Gly	Pro	Thr	Leu	Val	Lys	Pro	Thr	Gln	
1				5				10					15			
Thr	Leu	Thr	Leu	Thr	Cys	Thr	Leu	Ser	Gly	Phe	Ser	Phe	Gly	Ser	Thr	
			20					25				30				
Ser	Met	Asn	Arg	Leu	Arg	Gln	Ser	Pro	Gly	Gln	Ser	Leu	Glu	Trp	Asn	
		35				40						45				
Gly	Gly	Arg	Asn	Asn	Ser	Ile	Val	Lys	Ser	Ile	Thr	Val	Ser	Ala	Ser	
	50					55					60					
Gly	Thr	Lys	Ala	Thr	Leu	Thr	Ala	Asp	Lys	Ser	Ser	Ser	Thr	Ala	His	
65					70				75					80		
Met	Glu	Leu	Arg	Ser	Pro	Thr	Ser	Glu	Asp	Thr	Ala	Val	Tyr	Tyr	Cys	
				85				90						95		
Ser	Pro	Ser	Tyr	Thr	Tyr	Tyr	Arg	Pro	Gly	Trp	Gly	Gln	Gly	Thr	Leu	
			100					105					110			
Val	Thr	Val	Ser	Ala												
			115													

<210> 13
 <211> 107
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified light chain variable region of murine antibody

<400> 13

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Asp Ile Gln Thr Thr Gln Ser Gln Lys Ser Gln Ser Thr Ser Ala Gly
 1           5           10           15
Asp Arg Ala Ser Thr Thr Cys Lys Ala Ser Gln Asn Val Ser Thr Asn
          20           25           30
Ala Ala Trp Tyr Gln Gln Thr Pro Gly Gln Ser Pro Lys Ser Leu Ile
          35           40           45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Asp Arg Phe Thr Gly
          50           55           60
Ser Gly Ser Gly Thr Asp Phe Thr Gln Thr Thr Ser Asn Ala Gln Ser
65           70           75           80
Glu Asp Ser Ala Glu Phe Phe Cys Gln Gln Tyr Asn Arg Tyr Pro His
          85           90           95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Leu Lys
          100           105

```

<210> 14

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> modified light chain variable region of murine
antibody

<400> 14

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Asp Ile Gln Thr Thr Gln Ser Gln Lys Ser Gln Ser Thr Ser Ala Gly
 1           5           10           15
Asp Arg Ala Ser Thr Thr Cys Thr Leu Leu Ser Val Thr Arg Asn Asp
          20           25           30
Val Ala Trp Tyr Gln Gln Thr Pro Gly Gln Ser Pro Lys Ser Leu Ile
          35           40           45
Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Asp Arg Phe Thr Gly
          50           55           60
Ser Gly Ser Gly Thr Asp Phe Thr Gln Thr Thr Ser Asn Ala Gln Ser
65           70           75           80
Glu Asp Ser Ala Glu Phe Phe Cys Tyr Leu Ser Gly Ala Asn Leu Asn
          85           90           95
Leu Phe Gly Gly Gly Thr Lys Leu Glu Leu Lys
          100           105

```

<210> 15

<211> 17

<212> PRT

<213> Homo sapiens

<400> 15

```

Asn Ile Thr Val Asn Asn Ser Gly Ser Tyr Thr Cys Gln Ala His Asn
 1           5           10           15
Ser

```


<210> 16
<211> 17
<212> PRT
<213> Homo sapiens

<400> 16
Asn Ile Thr Val Asn Asn Ser Gly Ser Tyr Met Cys Gln Ala His Asn
1 5 10 15
Ser

<210> 17
<211> 17
<212> PRT
<213> Homo sapiens

<400> 17
Lys Ile Thr Pro Asn Asn Asn Gly Thr Tyr Ala Cys Phe Val Ser Asn
1 5 10 15
Leu

<210> 18
<211> 17
<212> PRT
<213> Homo sapiens

<400> 18
Gly Arg Asn Asn Ser Ile Val Lys Ser Ile Thr Val Ser Ala Ser Gly
1 5 10 15
Thr

<210> 19
<211> 8
<212> PRT
<213> Homo sapiens

<400> 19
Gly Tyr Ser Trp Tyr Lys Gly Glu
1 5

<210> 20
<211> 8
<212> PRT
<213> Homo sapiens

<400> 20
Ser Tyr Thr Tyr Tyr Arg Pro Gly
1 5

<210> 21
<211> 8
<212> PRT
<213> Homo sapiens

<400> 21
Ser Lys Ala Asn Tyr Arg Pro Gly
1 5

<210> 22
<211> 8
<212> PRT
<213> Hom sapiens

<400> 22
Glu Asp Lys Asp Ala Val Ala Phe
1 5

<210> 23
<211> 9
<212> PRT
<213> Mus musculus

<400> 23
Asn Val Gly Ser Ile Tyr Asn Gln Lys
1 5

<210> 24
<211> 9
<212> PRT
<213> Homo sapines

<400> 24
Ile Val Lys Ser Ile Thr Val Ser Ala
1 5

<210> 25
<211> 9
<212> PRT
<213> Mus musculus

<400> 25
Ile Asn Pro Asn Asn Val Gly Ser Ile

1 5

<210> 26
<211> 10
<212> PRT
<213> Homo sapiens

<400> 26
Ser Ile Val Lys Ser Ile Thr Val Ser Ala
1 5 10

<210> 27
<211> 9
<212> PRT
<213> Mus musculus

<400> 27
Val Gly Ser Ile Tyr Asn Gln Lys Phe
1 5

<210> 28
<211> 9
<212> PRT
<213> Homo sapiens

<400> 28
Ser Ile Val Lys Ser Ile Thr Val Ser
1 5

<210> 29
<211> 8
<212> PRT
<213> Homo sapiens

<400> 29
Leu Ala Thr Arg Asn Asn Ser Ile
1 5

<210> 30
<211> 6
<212> PRT
<213> Mus musculus

<400> 30
Val Gly Ser Ile Tyr Asn
1 5

<210> 31
<211> 7
<212> PRT
<213> Homo sapiens

<400> 31
Ile Val Lys Ser Ile Thr Val
1 5

<210> 32
<211> 9
<212> PRT
<213> Mus musculus

<400> 32
Cys Ala Arg Gly Tyr Gly Asn Tyr Val
1 5

<210> 33
<211> 9
<212> PRT
<213> Homo sapiens

<400> 33
His Leu Phe Gly Tyr Ser Trp Tyr Lys
1 5

<210> 34
<211> 9
<212> PRT
<213> Homo sapiens

<400> 34
Asn Arg Phe Gly Tyr Ser Trp Tyr Lys
1 5